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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,305	01/04/2006	Takeshi Watase	282051US0PCT	8356

22850 7590 10/06/2010

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EXAMINER	
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ART UNIT	PAPER NUMBER
1787	

NOTIFICATION DATE	DELIVERY MODE
10/06/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/563,305	WATASE ET AL.	
	Examiner	Art Unit	
	FRANK D. DUCHENEAUX	1787	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-8,11-15 and 22-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-8, 11-15 and 22-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/29/2010 has been entered.

Response to Amendment

2. Applicant's arguments, see page 12, filed 4/29/2010, with respect to the rejections of claims 1, 4 and 5-6 under 35 U.S.C. 112, 1st paragraph have been fully considered and are persuasive. The rejections of claims 1, 4 and 5-6 have been withdrawn.

Claim Objections

3. **Claim 6** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The examiner notes that claim 5 recites a magnetic coating film containing an upper limit of 60 mass% of a magnetic powder and 20 to 40 mass% of a conductive additive, while the upper limit of the combined additive and powder is also 60 mass%. Thus, at an upper limit of 60

mass% of the magnetic powder, it is possible for the additive to be optional in claim 6, which does not further limit independent claim 5.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 14-15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14, the recitation of "in a case where the heat releasing magnetic coating film contains black additives" renders the claim indefinite as the said recitation suggests there are cases when the coating film does not contain the black additives, which is contrary to the other limitations of the claim.

6. **Claim 24** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 24, the recitation of "in a case where the heat releasing magnetic coating film contains black additives" renders the claim indefinite as the said recitation suggests there are

cases when the coating film does not contain the black additives, which is contrary to the other limitations of the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 1 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Hosoe et al. (US 2003/0094076 A1).

Regarding claims 1 and 4, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating on the inside and outside of the substrate (at least on one surface) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic

powder, magnetic coating film) of from 10 - 50 % (page 25, para 3-8). Watase is silent to a magnetic powder being permalloy.

However, Hosoe teaches alloy products and products applying said powders (title) comprising a dispersion of a Ni-Fe alloy powder mixed with organic binders (para 0042-0043) such as polyesters (para 0046). Hosoe also teaches that the Ni-Fe alloy powder is 80 weight % Ni and 20 weight % Fe, or permalloy, which is well known as a soft magnetic compound further having high conductivity (see also para 0005). Hosoe further teaches that permalloy has extremely high permeability and is thus favorably used in magnetic shielding materials (para 0029).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase and Hosoe references towards a heat dissipating resin film(s) having excellent magnetic permeability for further use as magnetic shielding coatings as in the present invention.

10. **Claims 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Nagano et al. (US 5455116).

Regarding claims 5-6, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating on the inside and outside of the substrate (at least one surface) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8),

said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 - 50 % and that an amount less than 10% results in the effect of the filler not being obtained while an amount above 50%, the workability is diminished (page 25, para 3-8).

Watase is silent to a magnetic powder being a soft magnetic ferrite powder and a total content of the electrically conductive additive and the magnetic powder is from 30 to 60 mass %.

However, Nagano teaches an electromagnetic wave reflection-preventing material (title) comprising a resin layer of, *inter alia,* polyester resin (column 3, lines 23-32), said layer comprising a ferrite and metal powder (column 3, lines 33-36). Nagano also teaches that the ferrites are those conventionally used in an electromagnetic absorber such as, *inter alia*, $MnOFe_2O_3$ (soft magnetic ferrite) (column 3, lines 48-53) and the metal powder is, *inter alia*, nickel (column 3, lines 65-67), wherein the amount of the ferrite and metal powder is 3 to 200 parts per 100 parts of binder and the total amount of the metal powder (electrically conductive additive) is less than 20 parts by weight (column 4, lines 29-31 and lines 38-43), which provides for a soft magnetic in an amount as presently claimed.

It is noted that the amount of the electrically conductive metal powder as taught by Nagano share an endpoint with that presently claimed and that the only deficiency of Nagano et al. is that Nagano et al disclose the use of less than 20% mass metal powder, while the present claims require 20 to 40% mass conductive additive.

It is apparent, however, that the instantly claimed amount of 20% and that taught by Nagano et al. are so close to each other that the fact pattern is similar to the one in *In re Woodruff* , 919 F.2d 1575, USPQ2d 1934 (Fed. Cir. 1990) or *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed.Cir. 1985) where despite a "slight" difference in the ranges the court held that such a difference did not "render the claims patentable" or, alternatively, that "a prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough so that one skilled in the art would have expected them to have the same properties".

In light of the case law cited above and given that there is only a "slight" difference between the amount of metal powder disclosed by Nagano et al. and the amount of the conductive additive disclosed in the present claims and further given the fact that no criticality is disclosed in the present invention with respect to the amount of conductive additive being less than 20% (see page 75 of the present disclosure), it therefore would have been obvious to one of ordinary skill in the art that the amount of conductive additive disclosed in the present claims is but an obvious variant of the amounts disclosed in Nagano et al, and thereby one of ordinary skill in the art would have arrived at the claimed invention.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase and Nagano references to provide the heat dissipating resin coated metal sheet with a conductive filler in an amount as presently claimed and to further provide a soft magnetic ferrite in an amount as presently claimed towards a heat dissipating resin coated metal sheet having adequate electric conductivity without diminishing the workability of

the sheet and providing the sheet with electromagnetic absorbing capabilities for further use as magnetic shielding coatings as in the present invention.

11. **Claims 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Hosoe et al. (US 2003/0094076 A1).

Regarding claims 7-8, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating (heat releasing property) on the inside and outside of the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 - 50 % (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive such as carbon black in an amount greater than 3 % (page 17, para 4-5 and page 18, para 4 and 12) and having an average particle diameter of 5 to 100 nm (page 19, para 4) and Al flake (other than carbon black) of from 5 - 30 wt.% (10 % or more) (page 21, para 1). Watase also teaches the integrated emissivity limitations of item (3) of current claim 7 (abstract). Watase is silent to a magnetic powder being permalloy.

However, Hosoe teaches alloy products and products applying said powders (title) comprising a dispersion of 50 weight % in solids of a Ni-Fe alloy powder in water dispersible

polyester (para 0078), said dispersion coated onto inner parts of frames of notebook personal computers and after drying, said coating achieved a film thickness of 30 μm (para 0084-0086).

Hosoe also teaches that the Ni-Fe alloy powder is 80 weight % Ni and 20 weight % Fe, or permalloy, which is well known as a soft magnetic compound further having high conductivity (see also para 0005) and a polyester resin serving as a binder (para 0045-0046). Hosoe further teaches that permalloy has extremely high permeability and is thus favorably used in magnetic shielding materials (para 0029).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase and Hosoe references towards a heat dissipating resin film(s) having excellent magnetic permeability for further use as magnetic shielding coatings as in the present invention.

12. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Hosoe et al. (US 2003/0094076 A1) and in further view of Nakao et al (US Patent 5945218).

Regarding claims 11-13 , Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating on the inside and outside of the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches

the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 – 50 % (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive (page 17, para 4-5). Watase further teaches a double layer film configuration wherein a clear coat is coated on the black film for mitigating the appearance of fingerprints and cracks on or in the black film (page 27, para 8), said clear coat having a thickness of 0.1 to 3.0 μm (page 28, para 3), made of a resin (page 28, para 5) and containing a pigment (page 28, para 5). Watase is silent to a magnetic powder being permalloy, to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass%, said pigment is TiO_2, and to the L-value limitations of item (4) of current claim 11.

However, Hosoe teaches alloy products and products applying said powders (title) comprising a dispersion of 50 weight % in solids of a Ni-Fe alloy powder in water dispersible polyester (para 0078), said dispersion coated onto inner parts of frames of notebook personal computers and after drying, said coating achieved a film thickness of 30 μm (para 0084-0086). Hosoe also teaches that the Ni-Fe alloy powder is 80 weight % Ni and 20 weight % Fe, or permalloy, which is well known as a soft magnetic compound further having high conductivity (see also para 0005) and a polyester resin serving as a binder (para 0045-0046).

Hosoe further teaches that permalloy has extremely high permeability and is thus favorably used in magnetic shielding materials (para 0029). Watase and Hosoe are silent to a resin coating film containing a white pigment and a luster pigment in each of the resin coating

films in an amount of 1 to 25 mass%, said pigment is TiO_2, and to the L-value limitations of item (4) of current claim 11.

However, Nakao teaches a process for forming a multilayer film (title) for improved properties such as surface gloss, smoothness, chipping resistance and the like (column 1, lines 8-13) where a white coating comprising a thermosetting resin, a metal powder coated with a white pigment and a titanium dioxide pigment (column 1, lines 54-56) can be coated on a plastic substrate (column 1, line 67 and column 2 line 1), said thermosetting resin is a polyester resin (column 3, lines 13-15).

Nakao continues to teach a white coating with a thickness of from 5 to 15 μm (column 3, lines 7-8) and a content of the metal coated with a white pigment from 0.1 to 30 parts by weight and the titanium dioxide pigment being from 1 to 200 parts by weight per 100 parts by weight of the total solid content of the resin composition (column 3, lines 44-53), which provides 0.1 to 23 mass % of the metal coated with a white pigment and from 1 to 66 mass % of the titanium dioxide pigment.

It is noted that, since the thickness of the coating overlaps that as presently claimed and since the mass % of the metal powder coated with a white pigment and TiO_2 overlap that as presently claimed, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the coating thickness and mass% of the pigmentation compounds for the intended application since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art (*In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980)) towards a polyester resin coating having L value as presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase, Hosoe and Nakao references towards a heat dissipating resin film(s) having excellent magnetic permeability for further use as magnetic shielding coatings, wherein the heat dissipating resin film are further coated with a resin coating towards a metal sheet with a resin layer with thermal radiative properties, and an additional white resinous coating coated thereon to impart to the metal sheet a surface gloss, smoothness, chipping resistance and the like as in the present invention.

13. **Claims 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Hosoe et al. (US 2003/0094076 A1) and in further view of Nakao et al (US Patent 5945218).

Regarding claims 14-15 , Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating (heat releasing property) on the inside and outside of the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 – 50 % (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive such as carbon black in an amount greater than 3 % (page 17, para 4-5 and page 18, para 4 and 12) and having an average particle diameter of 5 to 100 nm (page 19, para 4) and Al flake (other than carbon black)

of from 5 - 30 wt.% (10 % or more) (page 21, para 1). Watase further teaches a double layer film configuration wherein a clear coat is coated on the black film for mitigating the appearance of fingerprints and cracks on or in the black film (page 27, para 8), said clear coat having a thickness of 0.1 to 3.0 μm (page 28, para 2), made of a resin (page 28, para 4) and contains a pigment (page 28, para 5).

Watase also teaches the integrated emissivity limitations of item (3) of current claim 14 (abstract). Watase is silent to a magnetic powder being permalloy, to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (5) of current claim 14.

However, Hosoe teaches alloy products and products applying said powders (title) comprising a dispersion of 50 weight % in solids of a Ni-Fe alloy powder in water dispersible polyester (para 0078), said dispersion coated onto inner parts of frames of notebook personal computers and after drying, said coating achieved a film thickness of 30 μm (para 0084-0086). Hosoe also teaches that the Ni-Fe alloy powder is 80 weight % Ni and 20 weight % Fe, or permalloy, which is well known as a soft magnetic compound further having high conductivity (see also para 0005) and a polyester resin serving as a binder (para 0045-0046).

Hosoe further teaches that permalloy has extremely high permeability and is thus favorably used in magnetic shielding materials (para 0029). Watase and Hosoe are silent to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (5) of current claim 14.

However, Nakao teaches a process for forming a multilayer film (title) for improved properties such as surface gloss, smoothness, chipping resistance and the like (column 1, lines 8-13) where a white coating comprising a thermosetting resin, a metal powder coated with a white pigment and a titanium dioxide pigment (column 1, lines 54-56) can be coated on a plastic substrate (column 1, line 67 and column 2 line 1), said thermosetting resin is a polyester resin (column 3, lines 13-15).

Nakao continues to teach a white coating with a thickness of from 5 to 15 μm (column 3, lines 7 – 8) and a content of the metal coated with a white pigment from 0.1 to 30 parts by weight and the titanium dioxide pigment being from 1 to 200 parts by weight per 100 parts by weight of the total solid content of the resin composition (column 3, lines 44 – 53), which provides 0.1 to 23 mass % of the metal coated with a white pigment and from 1 to 66 mass % of the titanium dioxide pigment.

It is noted that, since the reference teaches a white pigment (i.e. TiO_2) as presently disclosed, and since the thickness of the coating overlaps that as presently claimed and since the mass % of the metal powder coated with a white pigment and TiO_2 overlap that as presently claimed, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the coating thickness and mass % of the pigmentation compounds for the intended application since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art (*In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980)) towards a polyester resin coating having L value as presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase, Hosoe and Nakao references towards a heat dissipating resin film(s) having excellent magnetic permeability for further use as magnetic shielding coatings, wherein the heat dissipating resin film are further coated with a resin coating towards a metal sheet with a resin layer with thermal radiative properties, and an additional white resinous coating coated thereon to impart to the metal sheet a surface gloss, smoothness, chipping resistance and the like as in the present invention.

14. **Claim 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Nagano et al. (US 5455116).

Regarding claim 22, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating (heat releasing property) on the inside and outside of the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5).

Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 - 50 % and that an amount less than 10% results in the effect of the filler not being obtained while an amount above 50% the workability is diminished (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive such as carbon black in an amount greater than 3 % (page 17, para 4-5 and page 18, para 4 and 12) and Al flake (other than carbon black) of from 5 - 30 wt.% (10 % or more) (page 21, para 1). Watase also teaches

the integrated emissivity limitations of item (3) of current claim 22 (abstract). Watase is silent to a magnetic powder being a soft magnetic ferrite powder.

However, Nagano teaches an electromagnetic wave reflection-preventing material (title) comprising a resin layer of, *inter alia,* polyester resin (column 3, lines 23-32), said layer comprising a ferrite and metal powder (column 3, lines 33-36). Nagano also teaches that the ferrites are those conventionally used in an electromagnetic absorber such as, *inter alia*, $MnOFe_2O_3$ (soft magnetic ferrite) (column 3, lines 48-53), wherein the amount of the ferrite and metal powder is 3 to 200 parts per 100 parts of binder, which provides for a soft magnetic in an amount as presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase and Nagano reference to provide the heat dissipating resin coated metal sheet with a conductive filler in an amount as presently claimed and to further provide a soft magnetic ferrite towards a heat dissipating resin coated metal sheet having adequate electric conductive without diminishing the workability of the sheet and providing the sheet with electromagnetic absorbing capabilities for further use as magnetic shielding coatings as in the present invention.

15. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Nagano et al. (US 5455116) and in further view of Nakao et al. (US Patent 5945218).

Regarding claims 23, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating on the inside and outside of the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 - 50 % (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive (page 17, para 4-5). Watase further teaches a double layer film configuration wherein a clear coat is coated on the black film for mitigating the appearance of fingerprints and cracks on or in the black film (page 27, para 8), said clear coat having a thickness of 0.1 to 3.0 μm (page 28, para 2), made of a resin (page 28, para 4) and contains a pigment (page 28, para 5).

Watase is silent to a magnetic powder being a soft magnetic ferrite, to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (4) of current claim 23.

However, Nagano teaches an electromagnetic wave reflection-preventing material (title) comprising a resin layer of, *inter alia,* polyester resin (column 3, lines 23-32), said layer comprising a ferrite and metal powder (column 3, lines 33-36). Nagano also teaches that the ferrites are those conventionally used in an electromagnetic absorber such as, *inter alia*, $MnOFe_2O_3$ (soft magnetic ferrite) (column 3, lines 48-53), wherein the amount of the ferrite and

metal powder is 3 to 200 parts per 100 parts of binder, which provides for a soft magnetic in an amount as presently claimed.

Watase and Nagano are silent to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (4) of current claim 23.

However, Nakao teaches a process for forming a multilayer film (title) for improved properties such as surface gloss, smoothness, chipping resistance and the like (column 1, lines 8-13) where a white coating comprising a thermosetting resin, a metal powder coated with a white pigment and a titanium dioxide pigment (column 1, lines 54-56) can be coated on a plastic substrate (column 1, line 67 and column 2 line 1), said thermosetting resin is a polyester resin (column 3, lines 13-15).

Nakao continues to teach a white coating with a thickness of from 5 to 15 μm (column 3, lines 7 – 8) and a content of the metal coated with a white pigment from 0.1 to 30 parts by weight and the titanium dioxide pigment being from 1 to 200 parts by weight per 100 parts by weight of the total solid content of the resin composition (column 3, lines 44 – 53), which provides 0.1 to 23 mass % of the metal coated with a white pigment and from 1 to 66 mass % of the titanium dioxide pigment.

It is noted that, since the reference teaches a white pigment (i.e. TiO_2) as presently disclosed, and since the thickness of the coating overlaps that as presently claimed and since the mass % of the metal powder coated with a white pigment and TiO_2 overlap that as presently claimed, it would have been obvious to one of ordinary skill in the art at the time of the invention

to adjust the coating thickness and mass % of the pigmentation compounds for the intended application since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art (*In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980)) towards a polyester resin coating having L value as presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase, Nagano and Nakao references to provide the heat dissipating resin coated metal sheet with a conductive filler in an amount as presently claimed and to further provide a soft magnetic ferrite in an amount as presently claimed towards a heat dissipating resin coated metal sheet having adequate electric conductivity without diminishing the workability of the sheet and providing the sheet with electromagnetic absorbing capabilities for further use as magnetic shielding, and wherein the heat dissipating resin film is further coated with a resin coating towards a metal sheet with a resin layer with thermal radiative properties, and an additional white resinous coating coated thereon to impart to the metal sheet a surface gloss, smoothness, chipping resistance and the like as in the present invention.

16. **Claim 24** is rejected under 35 U.S.C. 103(a) as being unpatentable over Watase et al. (KR 2003-0010506) in view of Nagano et al. (US 5455116) and in further view of Nakao et al. (US Patent 5945218).

Regarding claim 24, Watase teaches a substrate which is a metal sheet (page 25, para 10) upon which is disposed a heat dissipation coating (heat releasing property) on the inside and outside of

the substrate (both surfaces) with a thickness of, *inter alia*, 10 μm (page 17, para 4-5 and page 18, para 8), said heat dissipation coating formed of, *inter alia*, a polyester resin (page 19, para 5). Watase also teaches the coating contains a conductive filler such as, *inter alia*, Ni filler (magnetic powder, magnetic coating film) of from 10 - 50 % (page 25, para 3-8).

Watase continues to teach that the coating contains a black additive such as carbon black in an amount greater than 3 % (page 17, para 4-5 and page 18, para 4 and 12) and Al flake (other than carbon black) of from 5 - 30 wt.% (10 % or more) (page 21, para 1). Watase further teaches a double layer film configuration wherein a clear coat is coated on the black film for mitigating the appearance of fingerprints and cracks on or in the black film (page 27, para 8), said clear coat having a thickness of 0.1 to 3.0 μm (page 28, para 2), made of a resin (page 28, para 4) and contains a pigment (page 28, para 5).

Watase also teaches the integrated emissivity limitations of item (3) of current claim 24 (abstract). Watase is silent to a magnetic powder being a soft magnetic ferrite, to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (5) of current claim 24.

However, Nagano teaches an electromagnetic wave reflection-preventing material (title) comprising a resin layer of, *inter alia,* polyester resin (column 3, lines 23-32), said layer comprising a ferrite and metal powder (column 3, lines 33-36). Nagano also teaches that the ferrites are those conventionally used in an electromagnetic absorber such as, *inter alia*, $MnOFe_2O_3$ (soft magnetic ferrite) (column 3, lines 48-53), wherein the amount of the ferrite and

metal powder is 3 to 200 parts per 100 parts of binder, which provides for a soft magnetic in an amount as presently claimed.

Watase and Nagano are silent to a resin coating film containing a white pigment and a luster pigment in each of the resin coating films in an amount of 1 to 25 mass% and to the L-value limitations of item (5) of current claim 24.

However, Nakao teaches a process for forming a multilayer film (title) for improved properties such as surface gloss, smoothness, chipping resistance and the like (column 1, lines 8-13) where a white coating comprising a thermosetting resin, a metal powder coated with a white pigment and a titanium dioxide pigment (column 1, lines 54-56) can be coated on a plastic substrate (column 1, line 67 and column 2 line 1), said thermosetting resin is a polyester resin (column 3, lines 13-15).

Nakao continues to teach a white coating with a thickness of from 5 to 15 μm (column 3, lines 7 – 8) and a content of the metal coated with a white pigment from 0.1 to 30 parts by weight and the titanium dioxide pigment being from 1 to 200 parts by weight per 100 parts by weight of the total solid content of the resin composition (column 3, lines 44 – 53), which provides 0.1 to 23 mass % of the metal coated with a white pigment and from 1 to 66 mass % of the titanium dioxide pigment.

It is noted that, since the reference teaches a white pigment (i.e. TiO_2) as presently disclosed, and since the thickness of the coating overlaps that as presently claimed and since the mass % of the metal powder coated with a white pigment and TiO_2 overlap that as presently claimed, it would have been obvious to one of ordinary skill in the art at the time of the invention

to adjust the coating thickness and mass % of the pigmentation compounds for the intended application since it has been held that discovering an optimum value of a result-effective variable involves only routine skill in the art (*In re Boesch,* 617 F.2d 272, 205 USPQ 215 (CCPA 1980)) towards a polyester resin coating having L value as presently claimed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the Watase, Nagano and Nakao references towards a heat dissipating resin film(s) having excellent magnetic permeability for further use as magnetic shielding coatings, wherein the heat dissipating resin film are further coated with a resin coating towards a metal sheet with a resin layer with thermal radiative properties, and an additional white resinous coating coated thereon to impart to the metal sheet a surface gloss, smoothness, chipping resistance and the like as in the present invention.

Response to Arguments

17. Applicant's arguments, see pages 16-20, filed 4/29/2010 with respect to the rejection of claims 5-6 over Watase et al. in view of Nagano et al. under 35 U.S.C. 103(a);
the rejection of claims 7-8 over Watase et al. in view of Hosoe et al. under 35 U.S.C. 103(a);
the rejection of claims 11-13 and 14-15 over Watase et al. in view of Hosoe et al. and in further view of Nakao et al. under 35 U.S.C. 103(a);
the rejection of claim 22 over Watase et al. in view of Nagano et al. under 35 U.S.C. 103(a);

and the rejections of claims 23 and 24 over Watase et al. in view of Nagano et al. and in further view of Nakao et al. under 35 U.S.C. 103(a) have been fully considered but they are not persuasive.

The applicants argue that the combination(s) of the prior art references would not have been *prima facie* obvious over the current invention given that it would be erroneous to group all electronic devices together, group all problems relating to electronic devices, and presumptuous that one of ordinary skill would be generally motivated to solve problems, and provide improvements to, all electronic devices encompassed by the group of electronic devices of the prior art of record to solve problems specific to specific electronic devices.

In support of their arguments, the applicants cite case law that obvious-to-try and "invitations to experiment" do not establish obviousness, and further assert a lack of motivation for the combination of the Watase reference with the Hosoe reference as Watase makes no reference to a need for the absorption of microwaves, whereas the invention of Hosoe is directed to coatings for just such a goal. The applicants also contend that the said combination would undesirably affect the constructs/properties, i.e. density and shielding effects, of the Hosoe invention.

The examiner respectfully disagrees with the applicants' arguments that the combination of the prior art is an attempt at grouping the issues surrounding all electronic devices in an erroneous or inappropriate manner given that the issues discussed in the Watase and Hosoe references are such common issues that artisans of ordinary skill in electronic devices would have been well apprised of the advantages of an invention for use with said devices that provides

an enhanced ability to exhaust heat away from the said electronic devices while simultaneously providing the device with shielding from external EM radiation, which may harm delicate internal circuitry, and additionally, from protecting other such devices from a source of EM radiation from within the said electronic device. Indeed, the ubiquity of the heat and EM considerations of an electronic device are such well known problems that one of ordinary skill would require no invitation to experiment, but would instead be at the forefront in the design of an electronic device.

In response to the applicants' contention that the fillers of Watase would adversely affect the Hosoe invention, the examiner notes that, while Hosoe does not disclose all the features of the present claimed invention, Hosoe is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely alloy powders to impart EM shielding, and in combination with the primary reference, discloses the presently claimed invention. It is noted that the Hosoe reference was employed to remedy the deficiencies of the primary Watase reference and not vice versa.

Further, it is noted that "the arguments of counsel cannot take the place of evidence in the record", *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner's position that the arguments provided by the applicant regarding any destruction of the inventive concepts embodied in each of the two prior art references via the combination of the same must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), "the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that

any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001."

The applicants also suggest that it may have been the examiner's interpretation that the Watase/Hosoe combination was intended to teach that Hosoe's coatings was applied and bonded to Watase's metal forms, and that one of ordinary skill would not have been enabled to do so without undue experimentation given that, the applicants assert, the disclosure of Hosoe does not contemplate application of its coating to metal substrates.

In support of their arguments, the applicants allege that Hosoe intends for the disclosed coatings to be applied, not to metal substrates, but to plastic substrates, nor is Hosoe concerned with any heat dissipation issues. The applicants further allege that Hosoe expresses concern that the alloys powders of the Hosoe invention may be reduced and/or oxidized by metal, and that such redox considerations would be exacerbated under the high temperatures experience by the invention of Watase. Further, the applicants contend that the alloy powders of Hosoe may be dispersed in thermoplastic resins such as PE resins, which are rarely applied to metals exposed to high temperatures.

The examiner respectfully submits that the combination of the Watase and Hosoe references was employed to remedy the deficiencies of the Watase reference; in other words, as outlined above in the prior art rejections, Hosoe was employed to teach Ni-Fe alloy powders such as permalloy, which is well known as a soft magnetic compound having extremely high

permeability and is thus favorably used in magnetic shielding materials, which in combination with Watase, teaches the pertinent limitations of the current claim(s).

It is significant to note that the redox considerations disclosed in the Hosoe invention are directed to the production of the alloy powders and, if it is the applicants contention that the alloys of Hosoe would somehow lose their identity if combined with the invention of Watase, that such statements be submitted in a proper affidavit or declaration in response to the current action.

The examiner acknowledges that Hosoe discloses that the alloys of the invention may be dispersed in thermoplastic resins and used in the forming of molding material. However, Hosoe also clearly discloses that the alloys may also be used in coating solutions comprising an organic binder as outlined previously (see also para 043-0046). In addition, the examiner reiterates that the invention of Hosoe was employed in the current rejections to remedy the deficiencies of the Watase reference as previously discussed in the current action.

In conclusion, the applicants reiterate that the problems faced by each of the references are not related to one another, and that if prior art disclosures of all kinds of electrical devices were combinable based solely on their common use of electrical current, very few patents would ever issue, in contrast to the spirit of the drafted patent laws.

The examiner respectfully directs the applicants' attention to the prior art rejections set forth above, and to the examiner's previous responses to the applicants' arguments set forth above, in regards to the validity of the combination of the prior art references currently argued.

Indeed, it is the examiner's position that the combination of the Watase and Hosoe references is predicated upon the artistic analogy of each of the references given their disclosed inventions.

The legitimacy of the combination is also clearly valid given that the issues surrounding each of the inventions, and the problems/solutions to which they are directed are conspicuously such common, general issues in the electronic arts that an artisan of ordinary skill would have been well apprised of the advantages of current prior art combination.

18. Applicant's arguments, see pages 12-16, filed 4/29/2010, with respect to the rejection of claims 1 and 4 over Hosoe et al. under 35 U.S.C. 102(b) have been considered but are moot in view of the new ground(s) of rejection.

The applicants' attention is directed to the prior art rejection of claims 1 and 4 set forth above. The applicants' attention is further directed to the prior art rejections of claims 5-6, 7-8, 11-13, 14-15, 22, 23 and 24 set forth above, and to the examiner's response to applicants' argument also set forth above. It is noted that the Hosoe reference is secondary reference Watase in much the same manner as was employed in the prior art rejection of claims 7-8, for example.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANK D. DUCHENEAUX whose telephone number is (571)270-7053. The examiner can normally be reached on M-Th, 7:30 A.M. - 5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie E. Shosho can be reached on (571)272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/F. D. D./
Examiner, Art Unit 1787

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1787